

THE COMMON AND CONSPICUOUS SPIDERS
OF MELBOURNE

By L. S. G. BUTLER

In submitting these notes, I wish to state that the details on the life history and habits are from memory, therefore any errors that occur must be pardoned. Great difficulty was found in giving these spiders popular names. If those chosen are generally adopted it will tend to popularize the much-neglected study of spiders. Other than a few odd notes buried in journals, this is the only popular work ever published on Australian spiders.

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THE MELBOURNE TRAP-DOOR SPIDER, *Ananys butleri*

This spider belongs to the family *Aviculariidae* which contains the true trap-door builders, and the large bird-eating spiders (*avicula* = a little bird) of other countries. But this species does not make a door. Authentic proof of a true trap-door spider being found within the metropolis would prove interesting. At Mornington one of the wolf-spiders makes a burrow and covers it with a loose circular wafer of sand grains and silk; but this is not the beautiful door, which is hinged and fits so perfectly, and is very difficult to find even when it has been seen open at some other time.

A. butleri was originally found on the banks of the Merri Creek, at Clifton Hill, and later noticed in numbers burrowing in the garden paths at St. Kilda. It prefers a soft or sandy soil for its burrow, which is under half an inch in diameter, and nine inches deep. The opening at the surface is never closed with a door, but sometimes a fine web barricades the entrance. In the winter it is sealed with earth. Flood-time does not trouble this spider, the burrows having been observed under water for more than a week.

The Melbourne Trap-door Spider is about five-eighths of an inch in length, and is of a heavy build; two spinnerets project at the back like two little tails. Colour, black or dark pitch brown; eyes eight, close together in a group. A larger spider, of probably the same genus, has been noticed in the Sherbrooke Forest.

The Sydney Trap-door Spider, *Atrax robustus*, which has been held responsible for the deaths of several human beings, is not known to occur near Melbourne. Owing to these fatalities, the public is taking an interest in spiders, and numerous specimens are being received for identification.

About 150 species of *Aviculariidae* have been recorded from Australia. A positive method of identifying a member of this family is by the four book-lungs which show through the skin,

on the under side of the abdomen, as patches of a lighter shade; they are somewhat of a triangular shape with a slit at the rear. Also, the fangs, when lifted with a needle from their base, project downwards and do not meet pincer-fashion. If the fangs meet pincer-fashion, and there is only one pair of book-lungs, it is proof that the specimen is a true spider and not a trap-door species.

THE CRIBELLATE SPIDERS

The next group to be dealt with is that of the cribellate spiders (*cribellum* = a sieve). The sieve plate is found in front of the spinnerets. There is also a comb on the second last joint of the hind legs. The cribellate spiders can be recognized by the webs. The foundation lines are of smooth silk, and the snaring lines are teased and frayed by the little comb and laid in a zig-zag fashion.

THE SHEET-WEB SPIDER, *Amaurobius robustus*

It would be difficult indeed not to be able to find this spider on any house, fence, or outbuilding in Melbourne. The web is a coarsely woven sheet that tapers to a funnel-shaped retreat. This type of web must have inspired the author of "Will you walk into my parlour, said the spider to the fly." The retreat is the spider's parlour, and is built over any convenient hole, especially around the windows of weatherboard houses. The Sheet-web Spider is not a roamer but keeps inside its parlour, that is why we never see it in our dwellings. Any old barn or shed that has been long standing will reveal, on the roofs and walls, old and new webs of this species.

Amaurobius (= living in the dark) is seldom seen, but it sometimes can be coaxed out by placing a living fly on the web. Wasps often tease at the web of this spider, trying to capture it, to be stored as "paralysed provender" in their clay nests. It does not fear the wasp, but rushes out and tackles it by raising its front legs, and snapping its fangs at the enemy.

Do not confuse the web of this sheet-web builder with that of any of the *Agelenidae*. The web of *Amaurobius robustus* is coarse and of a zig-zag texture, while those of *Agelenidae* are even and fine, finer than any texture produced in our muslin or silk factories.

Amaurobius robustus is a handsome black, or rather, a very dark gun-metal coloured spider, about three-quarters of an inch in length. The body and legs are heavily built. The eight eyes are in two even rows, well spread across the front of the head. Use a strong hand-lens when searching for the sieve-plate and comb. The egg-bags are made inside the retreat and the young keep with the parent at first, migrating before they have attained any size.

THE HUMP-BACKED SPIDER, *Uloborus congregabilis*

This little cribellate spider is very common in the hills near Melbourne, and, as the second name implies, it is of a social nature

and forms large communities. The individual web is about three inches in diameter and of the cart-wheel form. It differs from the true cart-wheel web of the *Argiopidae* in having the circular or spiral lines of silk teased out, and not having these lines covered with minute sticky globules.

In the Fern Tree Gully district almost every house has these webs in masses in the odd corners, and especially among the wooden frames that support water tanks. The webs often occupy a space of six feet or seven feet. On close examination, the cart-wheel webs can be seen; and on still closer investigation these small inconspicuous spiders are detected huddled up on the webs. As many as thirty spiders have been collected from one of these communal webs. In the summer the small, irregular-shaped egg-bags can be seen attached to the web.

(*Uloborus* = wood-boring, deadly bite?). These small spiders do not inflict a deadly bite on human beings. All spiders have poison glands with a duct leading to an orifice near the tip of the fang, and all spiders are deadly to their prey, but very few will ever attempt to bite a human being, even when handled. This species measures one-quarter of an inch in length. Colour, dark brown of a dusty hue. It has a decided hump on its back; and, when at rest on the web, its long forelegs are stretched well out in front. If a spider be noticed in this posture, it is sure to belong to the family *Uloboridae*.

A smaller form has been collected at Eltham, also on the walls of the power house at the Buchan Caves, Gippsland.

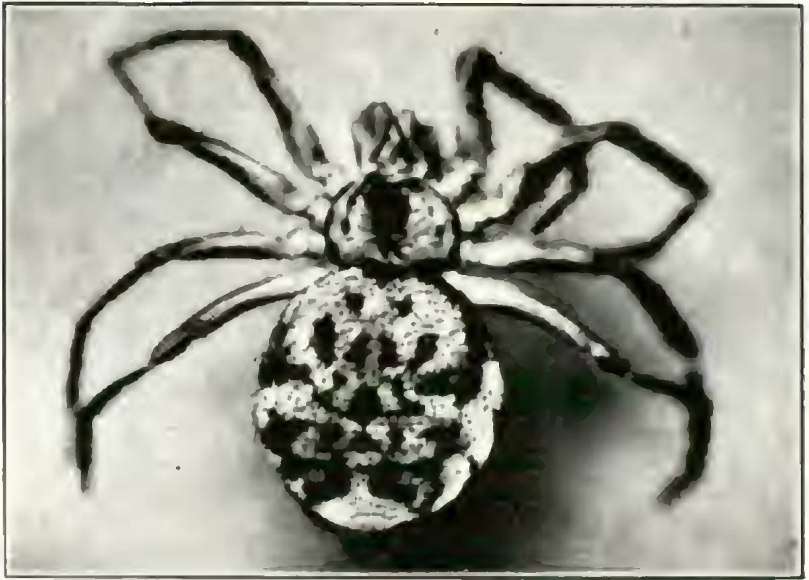
THE SMALL HOUSE-SPIDER, *Oecobius narvus*

This species (*Oecobius* = a house-dweller, *narvus* = active), though common, generally escapes notice. It is very small, being only one-eighth of an inch in length. It should be present in every house of any age in Melbourne. Examine the corners of the plastered walls inside the house. It will not prove difficult to find webs about an inch long in these corners, especially if they be covered in dust. Probably the webs will be unoccupied, but they will help one to locate the newer and inconspicuous webs. This web is not for snaring, but is simply a "tent" or covering under which the spider can be seen resting. Oft times it roams away, absenting itself for a few days, but invariably returns to its little home.

True to name, this spider is very active for its size, and in its wanderings may be seen and recognized by its quick and agile movements. A powerful lens is needed to reveal the six eyes which are situated exactly in the centre of the head. Also notice the head, or, strictly, the cephalothorax, which is wider than long. Both of these features are rare in spiders. Colour, pale fawn, size about one-eighth of an inch in length. If carefully examined, it

will be noticed that this little spider is crab-shaped. The egg-bag is very small and attached to the web; it contains seven or eight eggs.

There are very few members of this family, as only five different forms have been recorded, and this species is the only one known in Australia. Possibly it has been introduced by the agency of commerce, as it is found all over the globe.



The Small House-Spider, *Oecobius navus*. + 8

All of the following species belong to the true spiders. They vary greatly in shape, size and colour, but are consistent in having only two pairs of book-lungs; fangs that meet like pincers; and in lacking the little comb and sieve plate.

THE PILL SPIDER, *Theridion tepidariorum*

(*Theridion* = a little animal.) This common spider can be collected under branches, shelves, or in the interior angles of out-buildings. It does not seem to favour the interior of houses. It spins a web of irregular, but open, formation. The webs are as irregular as they can be, spun in any and every direction without any attempt at design or order, and occupying about a foot of space.

This spider can easily be recognized by its shape, which is globular. On being disturbed, it folds its legs tightly to its body and drops to the ground, breaking its fall by spinning out a silken

line, which later assists it to regain its original position on its web. When on the ground it stops there for a considerable time, shamming death. It is in this position that it looks nearly spherical, which accounts for boys calling it the "pill" spider.

Size, under a quarter of an inch; colour, dark, greenish-grey. There are numerous details, which need a microscope to show them. One interesting feature, a certain type of toothed hairs on its hind legs, proves the connection of this species with the Red-back Spider.

THE RED-BACK SPIDER, *Latrodectus hasseltii*

Latrodectus (= secretly biting) is the well-known Red-back Spider. Much has been written concerning this dreaded species. It is still a moot point whether it is the most poisonous spider in Australia. As stated previously, all spiders are poisonous. It is not wise to handle the large trap-door kinds, but the writer has handled Red-backs. While they were walking over his hands they made no attempt to bite. The conspicuous red stripe down the centre of its back seems to account for this spider's unpopularity.

The bite of a large or a Red-back Spider should be treated as a snake bite, and a doctor summoned to prescribe an opiate to deaden the pain. A spider's bite can be intensely painful. There is little danger of death, but the genus *Latrodectus* has a bad reputation throughout the world, and this cannot be without foundation.

A scorpion's poison is much more virulent than that of a Red-back Spider, and many soldiers in Egypt were stung by scorpions without fatal results.

The Red-back can be found in old tins and boxes, under logs or bark lying on the ground, especially at rubbish tips which are undisturbed. Shape, globular; colour, dark brown with a red stripe placed longitudinally down the centre of the back, length, about one-half inch. This species belongs to the same family as the Pill Spider, and its web is of a similar nature to that of the latter species. It will seldom be found unless searched for, as it is not a roamer, but keeps to its irregular web under shelter.

This spider should not be confounded with the Red-and-black Spider, *Nicodamus bicolor*, but this is one of the most common mistakes made by naturalists even.

THE WATER LOVER, *Tetragnatha valida*.

(*Tetragnatha* — four jaws; *valida* — lusty, active). This water lover is common along the banks of creeks and other similar places. It will not be found in houses or gardens. To be sure of finding this and similar species, a visit should be paid to our hills and the cart-wheel web looked for on the banks of creeks.

The web will be found between low growing bushes that partially overhang the water. The occupier is usually seen in the centre of the web, with its two front legs stretched well forward and the hind ones well to the rear.

The name "four jaws" is entirely wrong. "Long jaws" would be better, but they are not jaws; it is the base of the fang or chelicera that is long. The chelicera projects well forward, the abdomen is long and cylindrical, and when this spider is stretched out on the web it is not unlike a small twig in the centre. Length, about one-half of an inch; colour, brown and yellow fawn.

This genus is well represented in Victoria, and many of the species can be found; some of them are much larger than *T. valida*.

The habit of building their webs over water, swamps or damp places is world wide, and it would be interesting to know why the members of this family prefer these situations. No doubt there are always plenty of insects hovering about the creeks and swamps, but why do not other snarers build their webs in similar places?

THE SATIN-BANDED SPIDER, *Argiope acmula*

Acmula (= excelling) is a handsome spider, which can always be found in the autumn among the low-growing myrtle bushes in the Cheltenham district, especially at that favourite collecting spot opposite the Cheltenham Benevolent Asylum.

This is one of the most beautiful of our Australian spiders. It builds a cart-wheel web some ten inches in diameter, about a foot from the ground. In the centre, where the spider lurks, a distinct flat ribbon of silk is made in the form of a zig-zag. Possibly this is to strengthen the centre of the web, beside supplying a central platform for the owner.

To capture this beautiful specimen, one needs to be quick, as it will drop to the ground at the approach of danger. It will stay there, huddled up and shamming death. Unless the eye follows its descent, it will be found difficult to locate the spider.

Although this spider has been recorded from all parts of the continent, the writer has found it only in the locality mentioned. Even among the hundreds of spiders sent for his collection, only one example of *A. acmula* has been received from another district. April is the month during which the webs of this spider may be noticed at Cheltenham.

Length, about five-eighths of an inch; colour, brown, with silvery white, red and fawn bands of satin across the abdomen.

THE ENAMELLED-BACK SPIDER, *Araneus bradleyi*

This spider builds a cart-wheel web, and is found in many districts near Melbourne. It is very common in the hills, and has been collected in numbers at Sassafras. It builds its web between the bushes and in odd corners, such as those of fences

and posts, also the open doorways or windows of outhouses or stables. It is seldom seen in our suburban gardens.

Many of these cart-wheel web builders hide away in the daytime, and locate themselves in their webs only at nighttime. In some cases a line is spun from the centre of the web and held taut by the hind legs from the spinner's hiding-place. This telegraph wire signals any vibrations that may be caused by the entanglement of prey in the web. In this way a constant watch is kept. The Enamelled-back Spider retains its position in the centre of the web both night and day. If disturbed, it quickly departs from its central position, and hastily climbs to the outer zones of the circle, leaving the web by the supporting guy ropes. Its web is about eight inches in diameter, and is neatly made. It is never left in a half-made or untidy state.

A. bradleyi is five-eighths of an inch in length, the male very much less. The abdomen is broad and long, tapering to the rear. The species can easily be distinguished by the back of its abdomen having a beautiful pattern of a mosaic type in dark brown and a creamy yellow. Sometimes there is a suggestion of white or red in the pattern. The main feature to look for is the surface of this pattern. It has a high polish, equalling the polish of our enamels; hence the name, Enamelled-back Spider.

Eyes, eight in two rows of four. The claws of the cart-wheel spiders are worthy of notice. A microscopic mount of this object is well known. Two large claws have beautifully-even combs, a third and smaller claw is also visible. These combs help the spider to grip its web. The legs have a natural oily covering, so that they will not become entangled. If a leg is detached and the oil dissolved away, it will readily stick to the snare.

THE LEAF-CURLING SPIDER, *Aranens wagneri*

Although this spider is common in our gardens and the bush, its handiwork is far more familiar than the spider itself. By a description of its web, it can be identified, as no other spider in Victoria builds a similar retreat.

A. wagneri belongs to the master spinners of the family *Argiopidae*. All of the spiders in this family that spin form an orb or a cart-wheel web. The genus *Aranens* is well represented in Australia, having just over one hundred representatives. Most of these spiders hide in the daytime. Some mimic the surroundings of their hiding places so perfectly that even the trained eye has difficulty in locating them; others retreat into nooks and crannies. The Leaf-curling Spider builds into its web a dried, curled leaf, and with its silk lines this retreat. In our suburban gardens dried gum leaves are not always procurable. This spider, determined to find a retreat, has been known to place empty snail shells or the cap of an acorn in the centre of the web. In each case they have been placed with their openings underneath, which affords pro-

tection from the rain. The leaf is situated at or near the centre of the web, and if it be taken out and pulled apart the spider is sure to be revealed. It measures under one-half an inch in length; colour, fawn, with greenish-fawn markings.

It would be interesting to know how the leaf is placed in the web. Possibly it is attached by a silken rope and hauled from the ground. If collected dry, this leaf would have to be chosen for shape. These details and thousands of others need to be studied and recorded. We are ignorant concerning them. T. H. Savory prefaces his *Biology of Spiders* with these lines by F. Nausen:

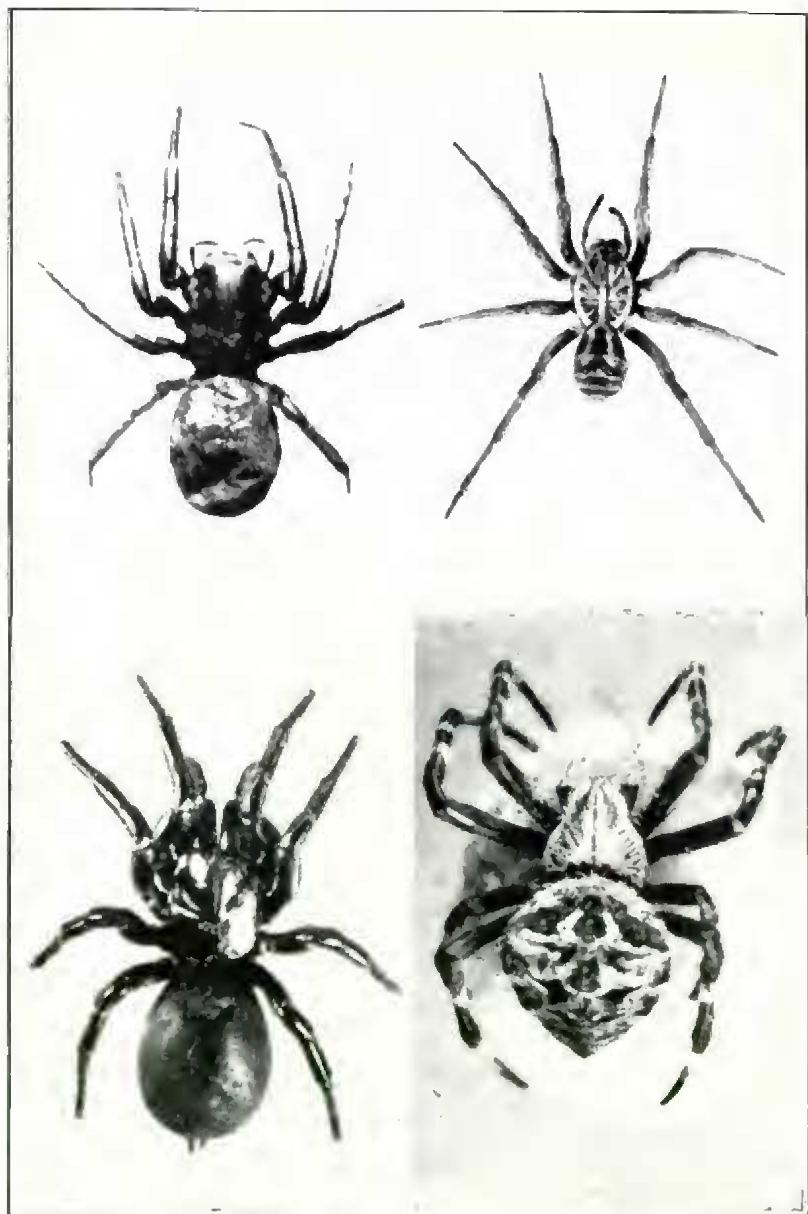
"Man wants to know, and when he ceases to do so he is no longer man."

THE CART-WHEEL WEB SPIDER, *Araneus productus*

Orb or geometrical web is the correct term for these webs, but as the term cart-wheel aptly fits the case, and is so commonly used, it has been adopted in this popular paper. It is difficult to choose a common member of this genus. *A. productus* may be the most common form that is found near Melbourne. The body measures about five-eighths of an inch in length, and is globular in shape. With its legs well spread, the spider would cover a circle one and a half inches in diameter. The under side of the abdomen has a long, spear-shaped appendage, which is attached near the front, and lies quite flat and free for about half of the length of the abdomen. Colour varies from light to dark brown.

This spider is common in gardens. Dusk is the time to see it building its web. Many of these cart-wheel webs are rebuilt each evening, so that an opportunity for observations often occurs. A few of the guy ropes are generally left over from the night before, but these can be relaid by the spider spinning out into the breeze a length of silken rope, which will catch against an opposite support. This is pulled taut and fastened, and the spider runs up and down this line, leaving a trail of silk to strengthen it. The next operation is to lay the spokes of the wheel or the radial lines. This is quickly done, and the lines are brought to a common centre. The final work is forming the circular or, rather, spiral line. This is the snaring line, and starting from the outside it gradually works to the centre. It is attached to each radial spoke, and is covered with a sticky substance. When fixed in position, each section is twanged by the spider's hind leg. This causes the viscid substance to break up into minute globules, which, under the microscope, prove to be as even as a necklace of beads. This peculiar phenomenon has been repeated by scientists in the laboratory using very fine fibres of quartz covered with oil.

The method of making the cart-wheel web varies considerably with the species, but little has been recorded of our Australian forms.



1 The Sheet-web Spider
Amaurobius robustus. - 1

3 A Trap-door Spider
Atrax venator. - $\frac{1}{2}$

2 The Wolf Spider
Lycosa ramosa. $\frac{1}{2}$

4 One of the Garden Spiders (*Araneus* sp.?)
making its egg-bag. - $\frac{1}{2}$

The *Aranei* make egg-bags of various shapes, one examined by the writer contained about 2,000 eggs.

THE TAILED SPIDER, *Arachnura higginsii*

The difficulty of finding a common name for this spider was easily overcome, as the writer has been so often asked, "What is the name of the spider with a tail?" It has no tail in the strict sense of the word, but the abdomen is long and tapers to a point, giving somewhat the appearance of a tail.

This is another of the cart-wheel spinners belonging to the family *Argiopidae*. Other than the tapering abdomen, the most interesting feature about this spider is its egg-bags. A common mistake is to call the egg-bag a cocoon. Although they are both of silk, a moment's reflection will prove which are the egg-bags. Most spiders make an egg-bag that looks the part, but not so *A. higginsii*. This spider weaves a bag somewhat the shape and colour of its maker. Altogether, three are made and placed in a line at the top of the web. At a position at one end the spider stands on guard, and it is difficult at first to distinguish spider from egg-bag. Many spiders adopt this method, even to greater perfection. One noted in Launceston, Tasmania, attached small particles of debris to its egg-bag, which in colour and shape perfectly resembled the builder which was resting above it.

The Tailed Spider is of a fawn colour with lighter patches at the front of the abdomen. At this position the abdomen is divided into two protuberances, which nearly touch each other. The tail ends with slight enlargements. These are not the spinnerets; they are in an unusual position at the centre of the abdomen. This species has been collected occasionally in the suburbs of Melbourne, but it is generally sporadically distributed.

THE SPINY SPIDER, *Gastercantha minax*

(*Gaster* = the stomach, *cantha* = spine, *minax* = threatening, surly). This spider is found in many districts around Melbourne, but seldom in gardens. It is one of our most conspicuous spiders, and at certain periods, common; on the other hand, it often is difficult to find. It builds a cart-wheel web where in the centre the spider is always located. Nothing seems to disturb it as it is so easily captured. Many orb-weaving spiders build their webs always at the same angle. The vertical position is most favoured, but this placid species builds it at any angle.

The Spiny Spider can easily be identified by the black spines that project in a stellar shape from the lateral edges of the abdomen. The back is embossed with a black and white pattern, the whole having an enamelled finish. The legs are of a reddish brown. There is a less common variety which differs only in colour. It is all black, including the legs.

Many nature lovers consider this to be our outstanding spider, but to the specialist there are many spiders of an ordinary appearance that possess some extraordinary and remarkable anatomical features. The wonderful thing is, that every year, in the course of collecting, more and more of these uncommon spiders may be found, proving that Australia possesses untold wealth for an arachnologist.

THE TURRET SPIDER, *Dolophones turrigera*

Turrigera (= bearing a tower) is one of the rare and remarkable spiders that occur around Melbourne. Possibly it may be plentiful in other parts, but it is a rarity for Melbourne. It is found when beating bushes with a canvas net. A net is the most prolific method of collecting; without it, many of the rarities would remain undiscovered. An old umbrella is even better for shaking bushes into, and, if one rib be removed, it can be placed against the trunk of a tree at that part. This will capture all spiders that try to escape by dropping to the ground.

By these methods *D. turrigera* was captured. This spider has an abdomen of unusual shape; a cylindrical tower stands upright from the centre. On the back is an inconspicuous mosaic pattern. Colour, brown. Length, about five-eighths of an inch. The Turret Spider belongs to the orb-weaving family, *Argiopidae*, but it is doubtful whether it spins a web. Nothing is known of its habits.

THE TRIANGULAR SPIDER, *Arcys clavatus*

This pretty spider also is an uncommon species. Sometimes it is found on the leaves of young Eucalypts. Length, about one-half an inch; colour, body and legs, pale orange tan; a pretty black and white mosaic pattern on the back of the triangular-shaped abdomen. Here is another spider of whose life-history and habits we are entirely ignorant. Once this spider has been examined it will not be forgotten, the shape of the abdomen is distinctive.

THE DEATH'S-HEAD SPIDER, *Celaenia excavata*

Although there are other popular names for this spider, Death's-head has been accepted owing to its general use. *C. excavata* (*Celaenia* = black, *excavata* = hollowed out) is fairly rare, but as it looks so uncommon it is sent in numbers to the National Museum. It is of a most unusual shape and generally keeps huddled up with its legs folded close to its body. In this position, it reminds one of a miniature skull. It is generally found in our gardens on leaves or twigs, especially on fruit tree twigs when the leaves have fallen. The colour is brown, and a dirty cream, the outer skin is very rough and crinkled. Length, about five-eighths of an inch.

The spherical egg-bags are dark brown, the same colour as the spider, and nearly the same size. Usually, five are made, three-eighths of an inch in diameter. They are caught together by a few untidy silken ropes, and the female keeps guard over them. The young hatch out and soon disperse by ballooning. Many spiderlings migrate in this way. A silken strand is spun out into the breeze; when this sail has sufficient buoyancy away the spider goes. Ballooning prevents the young from murdering each other and becoming cannibals. On one occasion, in Mr. Charles Barrett's garden at Elsternwick, thirteen egg-bags were counted, all being the work of one female Death's-head. About three months was spent on this effort, the mother keeping guard always.

This species builds no snare, and seems never to bother about food; it just remains huddled at its post. Many observations of the Elsternwick specimen were made, even in the early hours of the morning, always with the same result. It is difficult to understand how it obtained nourishment to amass enough substance for its task of egg-bag making.

Dicrostichus magnificus is an Australian spider that spins out a short line ending with a sticky globule. Insects are attracted to this and snared. This little fishing line is then pulled up, when the prey is removed and eaten. In this strange manner the spider obtains its food. It may be that *Celaenia* also adopts this method of fishing for its food.

SMALL BLACK-AND-WHITE CRAB-SPIDER, *Cymbacha similis*

This spider (*Cymbacha* = head foremost, *similis* = similar) is about the most common representative of the family *Thomisidae* which contains nearly all the small crab-spiders. Many of these spiders hide among the flowers. When insects visit the flowers for nectar, they are pounced upon by these pretty little spiders. Some of the crab-spiders are brightly coloured, and seem to choose flowers that match their colouration. So complete is the camouflage that it is difficult to detect the spiders.

The little Black-and-white Crab-spider is never found in these situations, but is common at times under the loose bark of the gum trees. It spins neither web nor snare, but is a hunter. It is black, but a pattern of small white markings ornaments its body and legs. Measuring under a quarter of an inch in length, it needs some searching for, but a keen collector will find many of these little animals whose gait resembles that of a crab.

Thomisidae is a large family. About one hundred and twenty species have been recorded from Australia. They vary greatly. One genus, *Stephanopsis*, is common, and its members are recognized by their hairs, which are flat, thick, and broad at the end, giving the spider the appearance of being covered in small warts. Under a hand-lens the spider looks grotesque.

THE GIANT CRAB-SPIDER, *Delena cancerides*

(*Cancer* = a crab, *delena* = destructive?). To a collector the Gum-tree Spider, *Clubiona robusta*, is the most common species in Australia, but to the average country resident or bush Rambler the Giant Crab-spider is better known than any other kind. It is often found on the walls of dwellings in the evenings, searching for flies or other prey. If noticed by the householder there is the usual hunt with a handy weapon until the spider is dispatched. Any large spider usually receives the name of "tarantula" no mat-



The Giant Crab-spider, *Delena cancerides*, guarding its egg-bag. + 1

ter in what country it is found, but Australians have adopted a crude and ugly word, "triantelope", for *D. cancerides*. A word of protest is given here, and a request made that the common name, "Giant Crab-spider" be used. Even its peculiar sideways gait should suggest the suitability of this name for the big spider. It was originally named in 1837. Some of the early French boats must have taken away specimens, as it was described in France in that year.

For separating the sexes, the following detail will apply to any spider. When immature, difficulty will be found, but in the adult forms it is quite simple. Examine a fully grown spider, notice the four pairs of walking legs, and in the front there appears to be a fifth pair which are shorter. These are not legs, but palps or

feelers, known as pedipalps. If the pedipalp ends with a small claw the spider is a female. The male pedipalp does not taper off at the end, but it possesses a sexual organ at the extremity, which is bulbous or club-shaped. Even to the unaided eye, the sexes of very small spiders are easily distinguishable.

As is the case with most spiders, *Delena* kills and eats her husband, once she has no further use for him. The phrase, "They lived happily ever after", does not apply to spiders! At least five weeks after this period the eggs are laid. Females were collected at Fern Tree Gully, and after being isolated in glass-topped boxes for five weeks, the eggs, which proved to be fertile, were laid and enclosed in the egg-bags. The making of the egg-bags was not observed, but the method may be the same as that of a species of *Aranous*, which the writer has noted. The eggs are laid covered with a syrupy substance which keeps them in one mass, later it dries up on to the surface of the eggs, which are then separated. In the meanwhile the mass of eggs is covered with strands of silk, and eventually the egg-bag is formed. The bag of *Delena* is about three-quarters of an inch in diameter, one-quarter of an inch thick, and lenticular in shape. The silk cover is of a tough, papery texture. This spider does not make an inner, soft, downy blanket.

The females of many species die and leave the young to forage for themselves, but *Delena* guards the egg-bag, carrying it nestled against the under side of the body. Three weeks later the young are out of the eggs and the egg-bag is alive with movement. The young, which number about one hundred, make no attempt to cut through the walls of their silken house till one week later, when the first moult takes place. This moult occurs inside the bag and after it the spiderlings make their way out by piercing the wall. The young climb all over the mother and seem not to be anxious for food. These spiderlings do not migrate by ballooning, but keep to their original birthplace under the guard of the fond parent. The writer has repeatedly noticed families living together, the young being about half-grown—at a guess, about five months old; they number about twenty. To what age these Giant Crab-spiders live has not been recorded. Text-books state that some spiders live for five or six years.

As the spider grows it finds its inflexible outer skin too small for expansion. When casting the old skin, the growing *Delena* takes a firm grip on the bark with its claws. Expanding and contracting the body, it splits the outer skin down the back, and the body, covered in a new skin, emerges. After numerous tugs, the legs also are freed of their old skin. This process takes about one hour. The new, soft skin expands, then hardens. In this manner the spider grows. If before moulting the spider is minus a limb, a new one has been formed by regeneration and is visible after

moulting. It may be stunted in size, but if there are any subsequent moults the organ may regain its normal size.

Little is known of the habits of the Giant Crab-spiders. They move about at night and hide under the loose bark of gum trees all day. They readily adapt themselves to our dwellings. It is wonderful into what small places these giant spiders can crawl. It is the depressed shape of the body that enables them to occupy such narrow quarters. A large specimen in captivity which was missing was found at last in a pyramidal cavity seven-eighths of an inch at the base, three-quarters of an inch high, and by four inches in length. The opening was of the full length, but very narrow, about one-sixteenth of an inch, which could be sprung to the limit of one-quarter of an inch. The Giant Crab-spider builds a "fence" between the bark and the trunk of the tree. This silken structure is only built at the egg-laying period.

In Tasmania, *Delena* was found under loose stones. Such a habitat for the species was only once observed on the mainland—at Mornington (Vic.), where a female and her half-grown family of twenty were sheltering in small crevices between a few bricks.

These spiders are hunters, never spinning either a web or a snare. At night they wander about. For some unaccountable reason, they are repulsive to most people. They are harmless; there are no records of one biting a human being; although they have poison glands and formidable fangs. Once only has the writer known this giant spider to be pugnacious. It certainly had been teased before it stood up and fought the forceps.

Many other species may be mistaken for *Delena*, but there is only one known member of this genus. *Delena concerrides* has a very flat cephalothorax or front part of the body, it is rather smooth with little hair and the hard skin or chitin shows in a tan colour with a partial gloss; the jaws or chelicera are nearly black. The other spiders which somewhat resemble *Delena* have a more convex and hairy cephalothorax, of a grey-brown colour.

THE HAIRY GIANT CRAB-SPIDER, *Isopeda robusta*

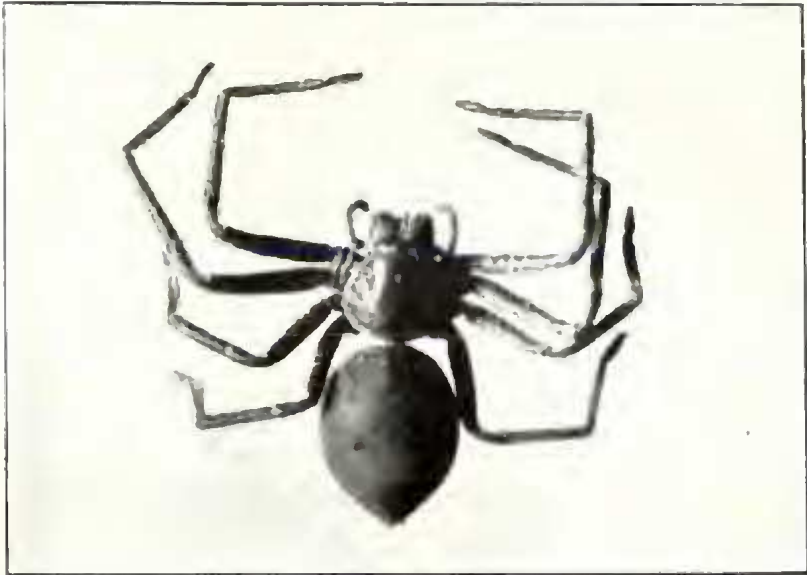
(*Isopeda* = flat, *robusta* = strong.) While there is only one *Delena* more than thirty species of *Isopeda* are known. But it is far easier to find *Delena*, as it outnumbers all the many species of *Isopeda*. Few persons will separate *Isopeda* from the commoner form. *Isopeda robusta* is possibly the most common of this group, whose members, in habits and life history, resemble *Delena*.

THE NURSERY BUILDER, *Olios diana*

(*Olios* = small, *diana* = goddess of hunting.) This spider has often been mistaken for a half-grown Giant Crab-spider, but it looks more naked, fresher, and is of a brighter fawn or flesh-like colour. It is sparsely clothed with hairs and can be recognized

by two large black markings with white spots on the under side of the abdomen. The eight eyes are small, black, and arranged in two straight rows of four. Close examination shows white markings among the spaces between the eyes.

Olios can be collected on shrubs by beating with a net. It is never found under the loose bark of trees. Its nest is one of the most interesting pieces of spinning work found in the spider world. It is an inverted hemi-spherical silken dome about one and five-eighths of an inch in diameter. This cupola is built and attached



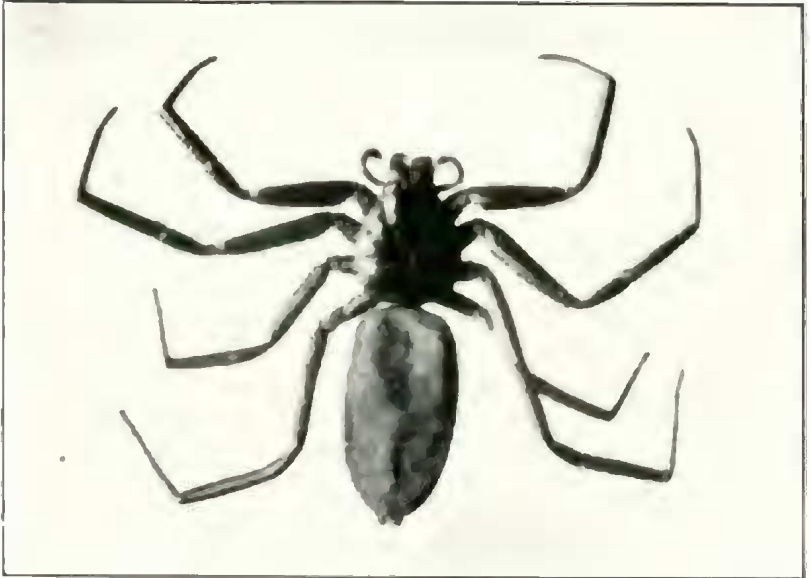
The Nursery Builder, *Olios diana*. + 2

to the ground. The outside is covered with a few gum leaves, debris, sand and earth. The leaves disguise the spherical shape of the nest as they are attached only for portion of their length. Inside the cupola it is beautifully lined with silk, and beneath it the mother spider guards her somewhat spherical egg-bag. When the spiderlings appear they find the protection of a silken lined nursery.

Wasps use paralysed spiders as provender for their larva, and one of the largest spiders that is used for this purpose is *Olios*. It has been seen being dragged along the sandy soil among Tea-tree at Carrum. The wasp appeared to have little difficulty in moving its bulky burden and at a remarkable speed for a creature so comparatively small.

THE SMALL FLAT CRAB-SPIDER, *Hemicloca plumea*

(*Hemicloca* = half ?, *plumea* = downy, covered with down.) This and similar forms are found under the bark of gum trees. Superficially they appear to belong to the same family as the Giant Crab-spiders and *Olios*. They are Drassids whose other members are not crab-spiders. Their extraordinary feature is their flatness. Many of them do not seem to be thicker than a visiting card. They might just have passed through the rollers of a mangle.



The Small Flat Crab-spider, *Hemicloca plumea*. + 4

Bearing in mind the extreme flatness of this spider, it should not prove difficult to identify it. Length, about three-eighths of an inch; colour, tan and tawny tan. This species never spins a web or a snare so it must hunt for its prey. Although fairly common, nothing is known of its habits or life history.

THE GUM-TREE SPIDER, *Clubiona robusta*

Clubiona is found only on Eucalypts; and may be collected on almost any tree that has plenty of hiding places under the loose bark. It is the most common spider in Victoria. Its silken covering or "tent" is built across the upper edges of a concave flake of loose bark. An opening is left at the end. On the floor of the retreat the female makes her egg-bag of simple form. The eggs are laid in one mass and a soft, downy blanket of silk covers them.



1 The Tailed Spider, *Arachnura higginsii*, making its egg-bags. + 1
3 The Death's-head Spider, *Celaenia excavata*, guarding its egg-bag. + 1

2 The Hump-backed Spider, *Uloborus congregabilis*, and its egg-bag. + 2
4 The web of the Leaf-curling Spider, *Araneus wagneri*. + 1

An outer sheet of silk protects all. Although called an egg-bag, it is not truly a bag, but a covering. The mother guards the eggs, and when disturbed does not leave her home freely. The young seem to prefer the same habitation, for when collecting, many immature forms are found under the bark.

Length, about five-eighths of an inch, medium build. Front part of the body smooth chitin of a rich brown or tan hue. Abdomen slightly tapering to the rear and of a lighter colour with central markings down the entire length, resembling somewhat the outline of a fern leaf. There are many varieties that closely resemble each other; twelve species have been recorded. Another genus, *Chiracanthium*, closely resembles *Clubiona*, but in the former, the jaws or chelicera are longer and project more forward.

THE RED-AND-BLACK SPIDER, *Nicodamus bicolor*

Time after time this spider has been confused with the Red-back poisonous spider. It is easily distinguished, as *Latrodectus hasselti* has a red stripe down the abdomen, or rear portion, whereas *N. bicolor* has a black abdomen, and the front portion of the body red. The legs are red and tipped with black.

This is a small spider about one-quarter of an inch in length. It is common under bark, stones, and logs; and seldom roams from these positions. It seems to lead a placid existence. When captured it does not appear to be in the least disturbed. Although the life of *Nicodamus* appears to be dull and uninteresting, it may eventually give an interesting life history. As each year passes many new and, at times, extraordinary facts concerning common spiders are being published.

Six members of this genus have been recorded; they closely resemble each other, but *N. bicolor* is the most common species found around Melbourne.

DADDY LONG-LEGS, *Pholcus litoralis*

(*Pholcus* = squint-eyed, *litoralis* = pertaining to the sea-shore.) There are many Daddy Long-legs, but this popular name belongs rightly to *Pholcus litoralis*. An outdoors life has no attraction for this spider, which is always found inside houses or outbuildings. Long, straggling webs near the ceilings betray its presence. Old webs, which collect the dust, are the bane of the housewife.

The snare is built irrespective of any design or order and on it the spider rests, waiting for its prey to be entangled. Hanging upside down does not seem to cause it any discomfort, as the Daddy Long-legs prefers that position in its web. When a fly or any other prey is snared the spider shakes its web further to ensnare it; when disturbed it becomes greatly alarmed and violently shakes the web by gyrating its body. Possibly this is

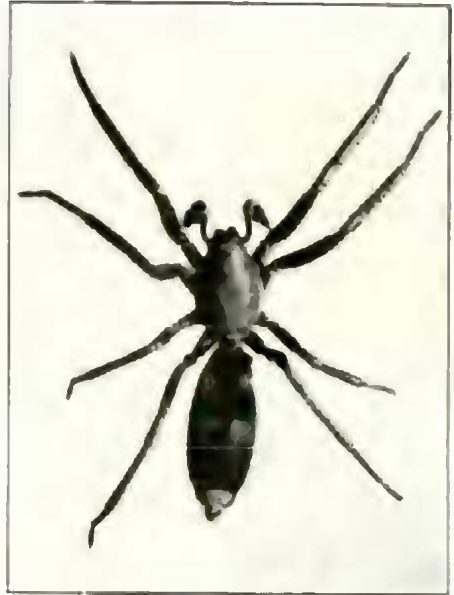
meant to frighten away intruders. This strange habit is confined to this spider. Some of the cart-wheel web builders shake their webs, but it is a slow motion movement compared to that of *Pholcus*.

Daddy Long-legs builds an egg-bag with the thinnest covering of silk and carries it about in its wanderings. Sometimes, when the spider is feeding, it is attached to the web. When finished it is readily taken back and attached to its body by a silken strand from the spinnerets. Daddy Long-legs is known to all by its long and extremely thin legs. Its small body measures one-quarter of an inch in length. The spread of the leg would fill a three and a half inch circle.

THE WHITE-TAILED SPIDER, *Lampona obscena*

(*Lampona* = bright tailed, *obscena* = boding ill.) Its common name does not describe this spider quite correctly, but has been adopted because the following question has been so often asked, "What is the name of the black spider with the white tail?" The abdomen bears no resemblance of a tail; it is cylindrical and not tapering, and the posterior end is a dirty-white colour.

Regarding the habits of this species, nothing is known. Although occasionally collected on gum trees, one need not go out of doors to find it. "A black spider on the wall" nearly always proves to be an example of *L. obscena*. The male is about one-third smaller than the female, whose body measures approximately five-eighths of an inch in length. Although the body is lightly built, the legs are strong and robust



The White-tailed Spider, *Lampona obscena*
(male). + 2

and are well spread, making the spider appear much larger than its actual size. It is not very common, but a resident in the suburban area is sure to see at least half a dozen specimens in the course of a year on the white, plastered walls of his house. It is fairly active, and not disposed to fight, for when captured it does not try to defend itself.

Owing to the bad reputation of spiders in general, the white-tailed species usually meets with an untimely death—is killed on sight by the householder.

The family *Drassidae* contains the genus *Lampona* and seventeen species of this genus have been described from Australia. This family contains many spiders of an ordinary appearance. The eight eyes are arranged in two straight rows of four, and there are only two claws on each leg.

THE LARGE BURROWING WOLF-SPIDER, *Lycosa ramosa*

(*Lycosa* = wolf, *ramosa* = branching). Owing to its burrowing habits this spider often is mistaken for a trap-door species. Often when the presence of a trap-door spider near Melbourne has been reported, investigation has resulted only in the finding of the Burrowing Wolf-spider.

L. ramosa is a large burrowing spider, found in great numbers on the flats at Torquay. The openings of its burrows can be noticed about twenty feet apart. The burrow measures three-quarters of an inch in diameter and ten inches in depth. The entrance is lined with silk.

In other countries many of the wolf-spiders build a conical turret of small stones, twigs and other debris, around the entrance to the burrow. This type of entrance has not been found in Australia, but it is possible that it will be. Fabre, in his *Life of the Spider*, says: "Take a stalk topped with its spikelet and rub and move it at the orifice to the burrow. Attracted by the bait, the spider comes with measured steps towards the spikelet." By this method the spider can be enticed to the top of the burrow. Many of the burrowing spiders will not respond to this artifice, but *L. ramosa* never fails. It always responds, being inquisitive. The quickest method of dislodging it from its burrow is to insert a long blade or a screwdriver down in the earth at such an angle that a sharp blow will drive it through the burrow and block the tenant's retreat.

Many of the females of *Lycosidae* can be seen at the entrance to the burrow with the hind legs holding the egg-bag above, and carefully turning it over and over so as evenly to distribute the warmth that radiates from the sun. When the young hatch out they clamber on to the mother's back, and if dislodged, quickly reascend, running up the legs and sides of their parent.

Numerous experiments have been made with the Wolf-spider's spherical egg-bag, which is always attached to the female's spinnerets. It does not seem to retard the spider's movements to any great extent, although evidently in the way. The mother is very stupid, and a clumsy imitation of the egg-bag will deceive her. If the real egg-bag be placed among substitutes, the female often will pass to an imitation, even when the genuine article is close at hand.

Although this spider looks formidable, it is not disposed to fight, but defends itself when attacked in its burrow. The writer had a specimen brought to him by a boy; it made no attempt to escape or bite the hand that held it. The Wolf-spider is a hunter, never spins a web or a snare, but comes out at night in search of its prey.

Lycosa ramosa is three-quarters of an inch in length; both the body and legs are heavily built. The colour is greyish-fawn. A decided pattern, in a darker shade, adorns it. Eyes, eight; two medians, large and on top of the head; posterior pair farther back. Front line of four, small, and close together, looking forward. These are the eyes that can be seen shining in the burrow, like cat's eyes in the dark. The spider has two claws, protected with a pad of hairs.

THE SMALL ROVING WOLF-SPIDER, *Lycosa godeffroyi*

Most of the detail given concerning *Lycosa ramosa* will apply to this spider, which is plentiful on lawns and among the flower-beds of the garden. The females are conspicuous, especially when they have their silken egg-bag. This spherical bag is attached to the spinnerets by a few silken ropes. These spiders do not burrow, but rove about, and at times hide under any available cover on the ground, such as stones, pieces of bark, etc.

Length, about three-eighths of an inch; colour and pattern, similar to those of *L. ramosa*, only slightly darker. Eyes similar; in fact, all of the *Lycosa* have their eyes arranged in the same grouping. Members of this family are often mistaken for trap-door spiders, but are easily separated from them. First, the fangs meet pincer-fashion; second, only one pair of book-lungs are present; and, finally, no trap-door spider has the front line of eyes, small, close together in a straight line, and looking forward.

GREY-AND-BLACK JUMPING SPIDER, *Ocrisiona melancholica*

(*Ocrisiona* = jagged, *melancholica* = melancholy.) This is a jumping spider; it belongs to the *Attidae* (= move suddenly).

These spiders form a large family, which the average arachnologist rather neglects. A satisfactory classification of the jumpers has yet to be worked out, which makes the determining of species rather difficult. Many quaint and uncommon forms have been described from Australia.

They are the only spiders that jump. Members of this family can readily be recognized by their eyes. Four enormous eyes, looking forward, are spaced across the front; the others are farther back. But even with this optical equipment, these spiders have but poor sight.

Jumping spiders are seen on bushes, fences, and other similar places. They move about rather quickly, stopping every second to raise the front of their bodies and look around, at the same time vibrating their little pedipalps in an up-and-down movement. This movement is rather conspicuous, as the pedipalps, which are in front, are covered in light-coloured hairs. Before a leap is taken a silken line is made fast; when the jump is made, this thread is spun out so as to guard any uncertain foothold when the spider alights. Frequently when it leaps upon the top of its prey, both fall into space. This does not alarm the spider, as it calmly suks the juices of its prey while hanging supported by a life-line.

The silk of the spider comes from the spinnerets as a liquid, and on contact with the air instantly and definitely solidifies into a strand of marvellous strength. To watch this silk pouring from the spinnerets, and to try to imagine it a liquid before coming into contact with the air, makes the marvel the more difficult to believe.

Jumpers hide between the cracks in or under the loose bark of trees. They build a little "tent" across the upper reaches of the coneave shape of the bark, leaving an entrance at the end. It is here that the female lays and guards the eggs. The eggs are not enclosed in a bag, but are covered in a silken sheet.

At Blackburn, males and females of the *Attidac* were found living in tubular retreats, which were built among the leaves of a bush. To all appearances, the spiders were living happily; but the life of the wedded male is very uncertain in the spider realm.

O. melancholica is a grey-and-black spider, three-eighths of an inch in length. It has a grey, irregular stripe down the centre of the back. It loves our grey paling fences, as its grey colour affords it protection, while many opportunities for a retreat are offered where the palings overlap. Jumpers are so fond of this habitat that, on a sunny day, every such fence in Melbourne would furnish a specimen or two.



The Grey-and-black Jumping Spider,
Ocrisiona melancholica. + 7

THE GLIDING SPIDER, *Saitis volans*

Saitis is one of our amazing spiders. It belongs to the *Attidae*, and is rare, but well distributed, around Melbourne. Length, well under one-quarter of an inch; eyes as in other *Attids*; colour, dark brown; top of abdomen, royal blue with scarlet markings.

Folded under the abdomen are two chitinous flaps which, when the spider is jumping, are extended like the wings of a monoplane. These flaps assist it to glide through the air. At rest, the flaps are folded and hidden so well that their presence would hardly be suspected.

This spider, being rather small, could easily be overlooked, but a collector would be sure to come across a specimen occasionally when beating bushes with a net. Very few of the jumpers are of any size; they average about one-quarter of an inch in length.

For taxonomic work, the essentials are a good collection of both spiders and descriptive literature dealing with the group. If your interest be of a popular nature, books such as Fabre's *Life of the Spider, Spiderland*, by Ellis, Savory's *Biology of Spiders*, and Warburton's small handbook are obtainable; but if you aim at a more technical study, the first knowledge to be acquired is its morphology. Comstock's *Spider Book* contains practically everything in this direction. The volume on Arachnida in the *Cambridge Natural History* is useful, while many other works have a few pages devoted to this detail on anatomy.

To classify, first sort out the specimens into their families and sub-families respectively. References can be made to (a) *Systema Araneorum*, by Alexander Petrunkevitch, M.A., Ph.D., D.Sc., Professor of Zoology in the Yale University, published in the *Transactions of the Connecticut Academy of Arts and Sciences* (Vol. 29, January, 1928), (obtainable from the University Press, price \$4.50). This work contains a key to all families and sub-families, and a list of genera, alphabetically arranged, under each sub-family. It is in English. (b) Simon's *Historie Naturelle des Araignees*. The text is in French, while the keys are in Latin. This work contains keys, descriptions, and references to all genera known at the time of its publication.

From 1865 to date, the Zoological Society of London has published an Annual Record of the scientific works published on zoology; each group is printed separately. All the volumes must be examined, and a list made of the group under study. This has been done for the Australian Araneae by Rainbow in the *Australian Museum Records* (Vol. IX., No. 2, 1911, pp. 107-319). It will need supplementing with the species described since 1911. The chief work on Australian spiders is by L. Koch, *Die Arachniden Australiens*, 1884-9, a rare and expensive German book. Modern Australian workers have published descriptions in the scientific societies' journals. All these works are in the Melbourne Public Reference Library.